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ABSTRACT

Research on the learning disabilities of adolescents and young adults and the findings on metacognitive development and its impact on academic learning provide a framework for the design and development of a secondary school curriculum foundation program for college bound learning disabled students. The major practical implications of the research on learning disabled secondary and postsecondary students are that many of these students frequently exhibit skill deficits in reading, related study strategies such as comprehension monitoring, notetaking, summarizing, outlining, and scanning, and that these students can be supported in a regular academic curriculum by teaching specific learning strategies that will help them meet the academic demands of secondary and postsecondary classrooms. The major practical implication of the research on metacognitive development is that students must be taught the factors involved in learning from text and how those factors interact to influence learner outcomes. General comprehension and specific study strategies as well as instruction related to learner characteristics should be components in instruction designed for learning disabled students. A 42-item reference list is appended. (Author/CB)

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A FRAMEWORK FOR CURRICULUM DEVELOPMENT FOR SECONDARY LEARNING DISABLED STUDENTS

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Long Island University Transition Project
Learning How to Learn: A High School/College Linkage Model
To Expand Higher Educational Opportunities for Learning Disabled Students

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ABSTRACT

The research on learning disabilities (LD) in adolescence and young adults and the findings from research on metacognitive development and its impact on academic learning provides a framework for the design of a secondary curriculum foundation program for the college-bound learning disabled high school student. The research on LD secondary and post-secondary students identifies specific areas of academic need relative to the demands of classroom settings and also characterizes the type of intervention that is most effective in promoting learning for many LD students. At the same time, the work on the development of metacognition, particularly as it relates to learning from text, identifies the critical content variables that have to be considered when designing curriculum for secondary LD students that can enhance their opportunities for success in college settings.

Traditionally, research in the field of learning disability (LD) focused upon the young school-aged child. In recent years, however, more attention has been devoted to the adolescent and young adult with learning problems. There is a growing body of information from a number of sources that has implications for the development of a secondary curriculum foundation program for learning disabled high school students which can enhance their potential for college success. Two major sources of information will be reviewed. These are: (a) research that has focused specifically on the LD adolescent and young adult, and (b) research on the development of metacognition and its impact on academic learning. The implications of the findings for the development of a framework for a secondary curriculum foundation program for college-bound LD high school students will also be outlined.

RESEARCH ON LEARNING DISABILITIES IN ADOLESCENT AND YOUNG ADULT POPULATIONS

Educational Characteristics and Academic Achievement

Currently, the extent of information pertaining to the educational and academic characteristics of adolescents with learning disabilities remains limited. However, some of the commonalities and some of the most enduring learning problems manifested by LD adolescents and young adults have been identified.

The one common characteristic found among adolescents with learning disabilities is a discrepancy between apparent ability to learn and actual academic achievement (Allgozzine and Ysseldyke, 1983). This finding is not surprising in light of the proposed federal criteria of a severe discrepancy between ability and achievement for identification of LD students (Federal Register, November, 1976). LD adolescents generally exhibit low performance in the academic areas of reading, written language and mathematics even when compared to other low achieving adolescents (Warner, Alley, Deshler, and Schumaker, 1980). Also of interest is the finding that during adolescence, despite continued basic skill remediation, growth in reading and mathematics appears to plateau by tenth grade and achievement remains two to four years below grade-level. (Deshler, Lowrey and Alley, 1979).

A number of researchers also report that many LD adolescents exhibit problems in several other areas. A trait often characteristic in LD adolescents is an inability to efficiently organize and retain information, leading to poor test-taking and study skills (Lehtinan-Rogan, 1971; Alley, Deshler and Warner, 1979). Many LD high school students generally do poorly in note taking, monitoring of written errors, scanning a textbook passage and listening comprehension (Carlson and Alley, 1981).

Similarly, many LD students are reported to fail in college because of weaknesses in reading comprehension, reading rate and written language. LD college students also exhibit ineffective study habits and they lack organizational and time management skills which compound their weaknesses (Simpson, 1979). Writing difficulties are also noted among LD college students. Problems with syntax, organization of ideas and spelling are frequently noted (Blalock, 1980; Cordoni, 1979; Vogel, 1982). It has also been found that rapid note-taking and essay writing under time pressure is problematic for many LD college students. They also appear to have difficulty in skimming an article and deriving the main points even after repeated readings, and are often unable to integrate information from different sources (Herbert and Czerniejewski, 1976).

Environmental Demands

An emerging issue in the field of learning disabilities is the relationship between the setting in which the individual must function and the disability. Therefore, the impact and demands of the high school and college environment upon the learning disabled student needs to be better understood. Several studies have provided information about the complex demands placed upon LD students by secondary classroom settings.

In studies of secondary school settings, the predominant classroom formats used most often by secondary teachers were seat work and lecture followed by some class discussion. There is little student-teacher interaction and minimal feedback is given to students. Teachers provide few advance organizers for students that might help them listen or take notes more effectively and only infrequently check for students' understanding of instructions or content. Students are required to work independently on assignments requiring reading and writing skills. In general, teachers expect that students should have acquired the skills to function independently in a number of areas such as volunteering answers, requesting assistance, locating the correct page(s),

and budgeting time without continuous monitoring. The findings indicate that to be successful in academic settings LD students need to have a number of competencies (e.g., listening, note-taking, attending, problem-solving skills) in order to effectively manage the information-processing demands of the classroom. The school environment also requires that LD students perform independently, recognize when they need assistance, and actively initiate interactions in order to obtain assistance (Zigmond, 1978; Moran, 1980; Schumaker, Warner, Deshler and Alley, 1980).

Educational Interventions

Findings from current research appears to document the need for educational interventions for LD adolescents that go beyond the traditional tutorial approach for the remediation of basic skills (e.g., reading and mathematics) or the acquisition of subject content. The finding that LD students reach a plateau in basic skill development in the secondary grades and the general lack of data with regard to the effectiveness of the tutorial approach has brought into question the appropriateness of this approach in providing the support needed by LD students in order for them to cope with the demands of a secondary school curriculum. While the tutorial approach may help students to pass required courses, it does not appear to adequately support short-term achievement gains nor do students learn to attempt and complete tasks on their own (Schumaker, Deshler, Alley and Warner, 1983).

Similarly, the limitations of the compensatory approach which attempts to modify or change the formats of instruction and/or instructional materials (e.g., taped texts, taping of lectures, etc.) in order to facilitate the LD students' acquisition of content material have been characterized. The assumption that changing the method of instruction or modifying the instructional materials will be powerful enough to affect learning has been challenged (Miller, 1983; Schumaker et al., 1982). Also, the changes that need to be made in the total educational delivery system in order to implement effective compensatory procedures that will benefit students is cumbersome and requires the cooperative efforts of administrative and instructional staff (Hartwell, Wiseman and Van Reusen, 1979). Finally, the compensatory approach shifts the responsibility and focus for change from the student to the system and does not provide LD students with the competencies they need to learn in order to cope effectively and independently with the demands of an instructional program (Deshler and Graham, 1980).

A learning strategies approach has been proposed that goes beyond the approaches outlined above and a number of validation studies appear to demonstrate the effectiveness of this approach in supporting the LD adolescents' acquisition of content material. The rationale underlying this approach is based, in part, on insights derived from cognitive psychology on the cognitive development of LD students. A number of studies have indicated that LD students do not spontaneously access or use task-specific strategies when they are needed (Brown, 1980; Torgesen, 1977, 1982; Wang, 1985; Seidenberg and Bernstein, in press). However, a number of studies have shown that when LD students are taught a task-specific strategy many can and do use the strategy effectively. A systematic instructional methodology leading to the acquisition and generalization of task-specific learning strategies has also been characterized (e.g., description of steps, modeling, verbal rehearsal, practice, etc.) These learning studies have indicated that not only are students able to perform academic tasks adequately (e.g., test-taking, monitoring of written errors, etc.) but that the use of these learning strategies results in an increase in course grades and in classroom and district competency test scores (Schumaker, et al., 1982; Lee and Alley, 1981; Deshler et al., 1981).

A limitation of this approach is that students are not given the opportunity or responsibility for analyzing task demands and designing their own strategies (Reid and Hresko, 1981; Garner and Reis, 1981; Brown, Campione and Day, 1981). One way to overcome this limitation is to develop instructional models utilizing task specific strategies that also incorporate findings from research in the role of metacognition in learning in order to develop more comprehensive and more effective learning strategy training models (Brown, 1980; Flavell and Wellman, 1977; Day, 1980; Brown and Palincsar, 1982).

METACOGNITION AND LEARNING

Metacognition plays a vital role in learning. The term, as used by cognitive psychologists, referes to both the knowledge and the control individuals have over their own thinking and learning. The role of metacognition in learning involves learners having knowledge of the task (e.g., storage and retrieval requirements), knowledge of the strategies or activities that need to be engaged in, as well as knowledge about themselves as learners, (e.g., characteristics and attributes that influence learning). Metacognition in learning also involves

self-regulation or control over the coordination of these complex interactive factors (Bransford, Stein, Shelton and Owings, 1980; Brown, 1978; Flavell, 1978; Dansereau, 1984). A number of studies in the development of metacognition have examined the interaction of these factors and learning with specific reference to learning from text and this body of research has important implications for the identification and development of those critical reading competencies that can enhance academic learning for LD students.

Metacognition in Learning from Text

Metacognition in learning from text involves the learners' knowledge and control of four factors and an understanding of how they interact to produce learning. These are knowledge of the features of text, knowledge of the nature of the task, knowledge of the activities or strategies that need to be engaged in and knowledge of their own learning characteristics.

Features of text

The research has identified a number of textual features that influence learning including topic familiarity, vocabulary, clarity (style, structure, coherence), and syntax. A focus for metacognitive research has been on structure - the logical organization of the reading material. Important findings of the research are that structure influences learning even when the learner does not have an awareness of the effects and that learning is maximized when the learner has awareness of the text features and is able to consciously use these features. Some of the features of text that have been identified as salient in learning are the ability to identify important idea units, the ability to identify organizational patterns, the ability to identify different levels of importance of ideas, and the ability to evaluate textual consistency and coherence (Brown and Smiley, 1978; Danner, 1976; Owings, Peterson, Bransford, Morris and Stein, 1980). Several training studies have also shown that students can be taught to identify and use text structure to facilitate learning. By using techniques such as advance organizers and the use of embedded headings high school and college students have been trained to identify and use common expository text structures as an aid to learning (Barlett , 1978; Dansereau, 1984).

Nature of the task

In learning from text, there can be many different purposes, or tasks, and these vary in the kinds of cognitive demands that are made. The learner has to be aware of the processing and retrieval demands of the task as well as have the ability to adapt reading and studying to meet these demands. For example, the processes involved in locating specific information in a text are very different from those required to write a summary or take a test. Students' performance on a number of different task characteristics have been examined such as the ability to modify reading behaviors in response to task difficulty, the ability to read for different purposes (e.g., details or general impressions), the ability to skim for relevant information and the ability to read for studying (e.g., selection of suitable retrieval cues). While there are developmental differences in the acquisition of these abilities, the findings also indicated that good readers are more aware of the processing and retrieval demands of different tasks and are better able to adapt their reading strategies to meet these demands (Myers and Paris, 1978; Kabasigawa, Ransom and Holland, 1980; Brown and Campione, 1979).

Activities or strategies

Metacognition also involves knowledge of what to do in order to repair comprehension breakdowns and to enhance storage and retrieval of information. A number of studies have looked at comprehension monitoring and repair strategies as well as study strategies. Comprehension monitoring and repair strategies are basically dependent on the purpose set for reading and include storing the comprehension failure in memory with the expectation that the forward text will bring clarification, rereading the prior text, scanning the forward text, or consulting an outside source. Here again, older children are more aware of these strategies and use them more effectively than younger children. Also, good readers are better than poor readers in comprehension monitoring and in repairing comprehension failures (Alessi, Anderson and Goetz, 1979; Paris and Myers, 1981; Garner and Reis, 1981).

Another important area for learning is study strategies and these include underlining, self-questioning, notetaking, outlining, semantic mapping, and summarizing. Several training studies in which students were taught to use a specific study strategy and which resulted in improved performance are reported.

All of the successful training studies in strategies for studying included instruction that addressed students' metacognitive awareness of text and task factors, as well as information about when, where, and how a strategy should be used (Day, 1980; Andre and Anderson, 1978-79; Brown and Palinesar, 1982).

Learner characteristics

Another important factor is the learner's awareness of his or her own characteristics (e.g., prior knowledge, skills, deficits, motivation, etc.), how these characteristics affect learning, and how reading and studying behaviors need to be modified based on these insights. One characteristic that has been studied is the awareness of and ability to use prior knowledge and the findings indicate that the activation and the extent of the use made of prior knowledge during reading also differentiates good and poor readers (Bransford, Stein, Shelton and Owings, 1980; Sullivan, 1978).

IMPLICATIONS FOR A SECONDARY CURRICULUM FOUNDATION PROGRAM

The research on learning disabilities in adolescents and young adults and the findings from research on metacognitive development and its impact on academic learning can provide a framework for the design and development of a secondary curriculum foundation program for college-bound learning disabled high school students.

The findings from research on LD secondary and post-secondary students identify specific areas of academic need in relation to the complex demands of academic settings and also clarify the kind of interventions that appear to be most effective in promoting skill acquisition for many LD learners. At the same time, the work on the development of metacognition, particularly as it relates to learning from text, identifies the content variables (e.g., text, task, learner strategies and learner characteristics) that have to be considered in designing curriculum for secondary LD students that will enhance their opportunities for success in academic settings. Of particular interest is the finding that instruction in metacognitive skills has a positive affect on learning outcomes. The findings also characterize the curriculum content of instructional interventions that can best help students learn from text.

The major practical implications of the research on LD secondary and post-secondary students are that many LD students frequently exhibit skill deficits in reading-related study strategies (e.g., comprehension monitoring, notetaking, summarizing, outlining, scanning, test-taking, etc.), and that these

students can be supported in a regular academic curriculum by teaching them specific learning strategies that will help them meet the academic demands placed on them by secondary and post-secondary classroom environments. Additionally, the training studies and replications that have been completed outline a specific teaching methodology used for each learning strategy intervention. The methodology consists of nine steps that include: (a) characterize for student the ineffective strategy, (b) describe the new strategy, (c) model the new strategy, (d) have student rehearse the strategy, (e) have student practice in controlled materials, (f) give feedback, (g) have student practice in grade level materials, (h) give feedback and test (Deshler, Alley, Warner and Schumaker, 1981). Thus, according to the intervention research LD secondary students can be successfully taught specific strategies that they can subsequently apply to academic materials used in regular classroom settings.

The research on the development of metacognition has also not only shown that instruction can be effective but it clearly suggests the content of a curriculum for teaching students successful strategies for learning from text. The major practical implication of this research is that students need to be taught to consider the four factors involved in learning from text and how they interact to influence learning outcomes (Brown, Campione and Day, 1981). Specifically, students should be taught to identify those text features that influence learning such as structural organization and to recognize the processing and retrieval demands of a task in order to adapt reading and studying to meet these demands. General comprehension (e.g., self-monitoring, etc.) and specific study strategies (e.g., notetaking, summarizing, etc.) as well as instruction related to learner characteristics (e.g., memory limitations, prior knowledge, etc) should also be included in instructional interventions designed to teach learning strategies to LD adolescents.

Based on the current research on learning disabilities in adolescents and on metacognitive development and academic learning, a secondary curriculum that addresses the reading-related study skill deficits of LD learners, incorporates a specific teaching methodology which promotes skill generalization, and includes the metacognitive content variables that influence learning appears to hold the most promise for enabling LD high school students to become more effective learners and thereby enhance their opportunities for academic success.

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